

Richmond Public Schools
Department of Curriculum and Instruction
Curriculum Pacing and Resource Guide



Course Title/ Course #: Second Grade

Start day: 1

Meetings: 180 days

Course Description

The second grade standards continue to focus on using a broad range of science skills in understanding the natural world. Making detailed observations, drawing conclusions and recognizing unusual or unexpected data are stressed as skills needed for using and validating information. Measurement in both English and metric units is stressed. The idea of living systems is introduced through habitats and the interdependence of living and nonliving things. The concept of change is explored in phases of matter, weather patterns, and seasonal effects on plants and animals.

Pacing Resources Assessments MP1

Time Frame	Standards of Learning	Units/ Topics/ Concepts	Resources	Assessments
Three Weeks	2.1 a-m (2.1 is ongoing throughout the year)	Scientific Investigation: Scientific Reasoning, Logic and Nature of Science: Planning / Conducting Investigations	Websites & Activities: <ul style="list-style-type: none"> • Jefferson Lab • SOL Pass • Scientific Investigation, Logic and Reasoning • Brainpop Jr- Scientific Investigation • Investigations and Data • Scientific Investigation Review 	<ul style="list-style-type: none"> • Performance-based tasks • Teacher observation of students engaged in cooperative learning investigations • KWL • Class created science rubrics • Science notebooks

			<p>Literacy Benchmark:</p> <ul style="list-style-type: none"> • Unit 10: Stephanie Investigates <p>Careers: Career Connection</p> <p>VDOE Enhanced Scope and Sequence Lessons:</p> <ul style="list-style-type: none"> • Observe and Classify • Let 's Find t he Mass • Are All Containers Created Equal? • Feeli n' Hot, Hot, Hot <p>Trade Books:</p> <ul style="list-style-type: none"> • Scientist Ask Questions (Rookie Read-About Science). By Ginger Garrett.2005.31p Publisher: Lerner Publishing Group • Step-By-Step (My First Reader). By Christine Taylor-Butler. 2006. 31p. illus. by Susan Miller. Publisher: Children's Press. • We Have the 	<ul style="list-style-type: none"> • Informal assessment through observation of students' participating in hands-on activities • Use of vocabulary in the classroom discussions and as they carry out science investigations. • Assess ability of students to formulate a hypothesis draw conclusions, and collaborate with others. • Use Interactive Achievement to create assessments
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			<p><u>Nerve, Now Let's Observe</u> (Science Made Simple; Rebus Reader). By Kelly Doudna. 2006. 24p. Publisher: Sandcastle.</p> <p>Discovery Education Videos:</p> <ul style="list-style-type: none"> • Investigations and Data • Science Facts and Fun: Making Sense of 	
Two Weeks	2.6 a-c; 2.1 (ongoing)	Interrelationships: Weather Changes & Patterns	<p>Careers:</p> <p>Career Connection</p> <p>VDOE Enhanced Scope and Sequence Lessons:</p> <ul style="list-style-type: none"> • Weather: Storms and other Weather Phenomena (PDF) / (Word) • Collecting Weather Data (PDF) / (Word) • Backyard Weather • Weather Instruments • Collecting 	<p>Knowledge/Comprehension Level</p> <ul style="list-style-type: none"> • Students sort and match various weather instruments with the type of weather information they produce. • Students create a small book that lists different types of weather and how each type of weather affects what people wear and what activities people can do.

			<p style="text-align: center;"><u>Weather Data</u></p> <p>Websites &Activities:</p> <ul style="list-style-type: none"> • <u>Changing Seasons</u> • <u>Weather Conditions and Cycles</u> • <u>Changes & Patterns</u> • <u>Weather Changes and Patterns</u> • <u>Weather Systems</u> • <u>Severe Storms Online Meteorology Guide..</u> • <u>USA Today Weather and Climate Information for Teachers.</u> • <u>The Weather Channel.</u> • <u>Weather around the World. Math Cats.</u> <p>Trade Books</p> <ul style="list-style-type: none"> • <u>The Cloud Book</u> • Words and Pictures By Tomie de Paola • <u>Water Dance</u> By Thomas Locker • <u>What will the</u> 	<p>Application/Analysis Level</p> <ul style="list-style-type: none"> • Students will apply knowledge of various weather instruments by drawing a picture of a storm where each weather instrument would be the best choice to give us the most information. • Students will compare two different storms of their choice along attributes such as storm characteristics, storm dangers, and storm safety. <p>Synthesis/Evaluation Level</p> <ul style="list-style-type: none"> • Students will choose an extreme storm to research and create inquiry questions to guide their research. At least one question must include the effect of the storm on people or animals (for example, “How can people stay safe in a tornado?”).
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			<p><u>weather be like today?</u> By Paul Rogers Pictures By Kazuko</p> <p><u>Sun up, Sun down</u> By Gail Gibbons</p> <ul style="list-style-type: none"> • <u>What will the weather be?</u> By Lynda DeWitt <p>Discovery Education Videos:</p> <ul style="list-style-type: none"> • Weather Start: Weather and Seasons • Magical Mother Nature: The Four Seasons 	<p>After researching their storm and finding the answers to their questions, students will create a Power point slide show based on the information about their storm and present the slide show</p>
Two Weeks	2.7a 2.1(ongoing)	Earth Patterns, Cycles & Seasonal Changes	<p>Careers:</p> <p>Career Connection</p> <p>VDOE Enhanced Scope and Sequence Lessons:</p> <ul style="list-style-type: none"> • What Changes when the Seasons Change? (PDF) / (Word) • Erosion Simulation (PDF) / (Word) • We Need Plants <p>Activities & Websites:</p> <ul style="list-style-type: none"> • Cycles and Earth Changes 	<p>Knowledge/Comprehension Level</p> <ul style="list-style-type: none"> • Students will sort and match examples of animals that migrate, hibernate, and adapt to changing weather/seasonal conditions <p>Application/Analysis Level</p> <ul style="list-style-type: none"> • Students will compare hibernation and migration using a Venn diagram. They will identify each attribute that is being compared (for example, hibernation

			<ul style="list-style-type: none"> • Seasonal Changes • Flashcards • Weather Wheel • Virginia Naturally: Virginia's Natural Resources Education Guide. • Agricultural Map of Virginia.. <p>Trade Books:</p> <ul style="list-style-type: none"> • Four Seasons Make a Year. By Anne Rockwell. Illus. by Megan Halsey. (2004). 32p. Walker Children's • The Reasons for Seasons. By Gail Gibbons. (1995). 32p. Holiday House • Our Seasons. By Ranida T. McKneally. Illus. by Grace Lin. (2007). 32p. Charlesbridge Publishing. <p>Discovery Education Videos:</p> <ul style="list-style-type: none"> • Migration and Hibernation • Through the Seasons with Birds: Fall 	<p>involves the animal remaining in its habitat, and migration involves the animal traveling to a different habitat, so the attribute would be LOCATION OF ANIMAL).</p> <p>Synthesis/Evaluation Level</p> <ul style="list-style-type: none"> • Students will create a new animal that has never been seen before. This animal must display migration, hibernation, and adaptation for different seasons or different types of weather. Students explain when and why their new animal migrates, hibernates, and adapts.
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Two Weeks	2.1, 2.6 & 2.7 a	Review/Benchmark Test/Portfolio Evaluation	PALS	<u>PALS –Air Temperature</u> <u>PALS-Rainfall</u> <u>PALS-Investigation Test</u>
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Pacing Resources Assessments MP2

Time Frame	Standards of Learning	Units/ Topics/ Concepts	Resources	Assessments
Three Weeks	2.7b 2.1(ongoing)	Earth Patterns, Cycles & Seasonal Changes	<p>Careers:</p> <p>Career Connection</p> <p>VDOE Enhanced Scope and Sequence Lessons:</p> <ul style="list-style-type: none"> • What Changes when the Seasons Change? (PDF) / (Word) • Erosion Simulation (PDF) / (Word) • We Need Plants <p>Activities & Websites:</p> <ul style="list-style-type: none"> • How Ice Cracks Rock • Types of Erosion • Great Erosion • Shape It Up • Erosion • Breaking News • Cycles and Earth Changes • Seasonal Changes • Flashcards • Weather Wheel • Virginia Naturally: Virginia's Natural Resources 	<p>Knowledge/Comprehension Level</p> <ul style="list-style-type: none"> • Students will sort and match examples of animals that migrate, hibernate, and adapt to changing weather/seasonal conditions <p>Application/Analysis Level</p> <ul style="list-style-type: none"> • Students will compare hibernation and migration using a Venn diagram. They will identify each attribute that is being compared (for example, hibernation involves the animal remaining in its habitat, and migration involves the animal traveling to a different habitat, so the attribute would be LOCATION OF ANIMAL). <p>Synthesis/Evaluation Level</p> <ul style="list-style-type: none"> • Students will create a new animal that has never been seen before. This animal must display

			<ul style="list-style-type: none"> • Agricultural Map of Virginia.. • Weathering and Erosion-You Tube Video • Virginia Trekkers <p>Trade Books:</p> <ul style="list-style-type: none"> • Four Seasons Make a Year. By Anne Rockwell. Illus. by Megan Halsey. (2004). 32p. Walker Children's • The Reasons for Seasons. By Gail Gibbons. (1995). 32p. Holiday House • Our Seasons. By Ranida T. McKneally. Illus. by Grace Lin. (2007). 32p. Charlesbridge Publishing. <p>Discovery Education Videos:</p> <ul style="list-style-type: none"> • Migration and Hibernation • Through the Seasons with Birds: Fall 	<p>migration, hibernation, and adaptation for different seasons or different types of weather. Students explain when and why their new animal migrates, hibernates, and adapts.</p>
Three Weeks	2.3 a-c 2.1 (ongoing)	Matter: Solids, Liquids & Gases	<p>VDOE Enhanced Scope and Sequence Lessons:</p> <ul style="list-style-type: none"> • What makes a 	<p>Knowledge/Comprehension Level</p> <ul style="list-style-type: none"> • Have students draw a solid, liquid and gas

			<p>Solid a Solid? (PDF) / (Word)</p> <ul style="list-style-type: none"> • Let 's Find the Mass & the Volume (PDF) / (Word) • The Water Cycle (PDF) / (Word) • Mix It Up: It's Refreshing • Disappearing Water <p>Activities & Websites:</p> <ul style="list-style-type: none"> • Changing States of Matter • States of Matter • States of Matter: Engaging Students with Snow and Ice • Flashcards • Describing Matter <p>Trade Books:</p> <ul style="list-style-type: none"> • The Magic School Bus: Meet Molly Clue • What's the Matter in Mr. Whisker's Room? 	<p>and label each picture.</p> <ul style="list-style-type: none"> • Show students pictures that, demonstrate melting, freezing, evaporation and condensation. Have students label each picture with the correct change in the state of matter. Ask students why the change is taking place in each picture. <p>Application/Analysis Level</p> <ul style="list-style-type: none"> • Give students a set of pictures that includes at least 3 solids, 3 liquids, and 2 gases. Tell students to place pictures into categories by similar properties. Have students explain their categories when finished. <p>Synthesis/ Evaluation Level</p> <ul style="list-style-type: none"> • Have students explain why solids are important in our world (students must name at least 2 solids in the explanation). Repeat for liquids and gases.
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			<p>Michael Elsohn Ross and Paul Meisels</p> <ul style="list-style-type: none">• <u>Matter: See It, Touch It, Smell It</u> (Amazing Science (Picture Window)) By Stille, Darlene R., Boyd and Sheree• <u>Bartholomew and the Oobleck:</u> (Caldecott Honor Book) (Classic Seuss) By Dr. Seuss• <u>Solids, Liquids and Gases</u>• <u>(Starting with Science)</u> By Ontario Science Centre and Ray Boudreau <p>Discovery Education Videos:</p> <ul style="list-style-type: none">• Lesson Starter: Why Does It Matter?• How Matter Looks and Feels• Song: Shake: Solids, Liquids, and Gases• The Language of Physical Science: Matter• A First Look: Solid, Liquid, Gases	
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Three Weeks	2.1, 2.3, & 2.7b	Review/Benchmark Test/Portfolio Evaluation		
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Pacing Resources Assessments MP3

Time Frame	Standards of Learning	Units/ Topics/ Concepts	Resources	Assessments
<p style="text-align: center;">Three Weeks</p>	<p style="text-align: center;">2.5a,b,c, 2.1</p>	<p style="text-align: center;">Living Systems: Organisms & Habitats</p>	<p>VDOE Enhanced Scope and Sequence Lessons:</p> <ul style="list-style-type: none"> • There's No Place Like Home (PDF) / (Word) • Habitat Changes over Time (PDF) / (Word) • Fossil Fun (PDF) / (Word) <p>Activities and Websites:</p> <ul style="list-style-type: none"> • Animals and Plants in their Habitats • How Animals Adapt To Their Environment <p>Trade Books:</p> <ul style="list-style-type: none"> • Bat Loves the Night By Nicola Davies • Do Bears Sleep All Winter? By Melvin Berger • Penguins By Penelope Arlon • Snakes By Nic Bishop • Where Do Polar Bears Live? By 	<p style="text-align: center;">Knowledge/Comprehension Level</p> <ul style="list-style-type: none"> • Have students describe the fox's surroundings in terms of water, space and shelter. • Have students draw and explain how the forest changes over the four seasons <p style="text-align: center;">Application/Analysis Level</p> <ul style="list-style-type: none"> • Have students compare a forest in the winter with the same forest in the spring. <p style="text-align: center;">Synthesis/Evaluation Level</p> <ul style="list-style-type: none"> • Students will determine the damage to animals when a habitat gets destroyed. They will then compare this kind of change to the seasonal changes that a forest goes through.

			<p>Sarah L. Thompson</p> <p>Discovery Education Videos:</p> <p>Videos:</p> <ul style="list-style-type: none"> • Habitats: Homes for Living Things • Plant Habitats Around The World 	
Three Weeks	2.8a,b,c,d 2.1	Earth Resources: Plant Products	<p>VDOE Enhanced Scope and Sequence Lessons:</p> <ul style="list-style-type: none"> • We Need Plants! (PDF) / (Word) • There's No Place Like Home <p>Careers: Career Connection</p> <p>Activities and Websites:</p> <ul style="list-style-type: none"> • Matching Plants and Products • Plant Products (PDF) • Virginia Naturally: Virginia's Natural Resources Education Guide. • Agricultural Map of Virginia.. 	<p>Knowledge/Comprehension</p> <ul style="list-style-type: none"> • Students sort products that come from plants and products that do not come from plants. • Students explain benefits of plants for humans and animals. <p>Application/Analysis Level</p> <ul style="list-style-type: none"> • Students view a picture of rainforest destruction and draw conclusions about what is happening in the picture, what the consequences are for the animals in the habitat, what products might be gained, and what could be done to protect the habitat in the future, while still acquiring products from plants. <p>Synthesis/ Evaluation Level</p> <ul style="list-style-type: none"> • Students create a new plant that has never been seen before. This plant

			<p>Trade Books</p> <ul style="list-style-type: none"> • <u>Fruits, Roots and Fungi: Plants We Eat</u> By Isamu Sekido • <u>Pharmacy in the Forest: How Medicines Are Found in the Natural World</u> By Fred Powledge <p>Discovery Education Videos:</p> <ul style="list-style-type: none"> • <u>Reading Rainbow: The Shaman's Apprentice: A Tale of the Amazon Rain Forest</u> • <u>The Language of Science: Life Science K-2: Plants</u> • <u>Plant Parts We Eat: Fruits and Seeds</u> 	<p>must produce food, oxygen, and one useful product. Students explain how plant benefits humans and animals with regard to these 3 products. Animal and/or human dependence on this plant must be proven in students' explanations.</p>
Three Weeks	2.1 2.4 2.5 2.8	Review/Benchmark Test/ Portfolio Evaluation		<ul style="list-style-type: none"> • Use Interactive Achievement to create assessments.

Pacing Resources Assessments MP4

Time Frame	Standards of Learning	Units/ Topics/ Concepts	Resources	Assessments
Four Weeks	2.2a, b, c 2.1 (ongoing)	Matter Magnets	<p>VDOE Enhanced Scope and Sequence Lessons:</p> <ul style="list-style-type: none"> • Magnets and Magnetism (PDF) / (Word) <p>Careers:</p> <ul style="list-style-type: none"> • Career Connection <p>Activities and Websites:</p> <ul style="list-style-type: none"> • The Power of Magnets • The Magic of Magnets • Magnets <p>Trade Books:</p> <ul style="list-style-type: none"> • What Magnets Can Do By Allan Fowler • What Makes a Magnet? By Franklyn M. Branley • Magnetism By Mari C. Schuh • Amazing Magnetism By Rebecca Carmi <p>Discovery Education Discovery Education Videos:</p> <ul style="list-style-type: none"> • Working Magnets • What are Magnets? • Music it Memorable: Magnets 	<p>Knowledge/Comprehension Level</p> <ul style="list-style-type: none"> • Give students 2 bar magnets with north and south poles labeled. Demonstrate attraction and repulsion with the two magnets. Have students explain why magnets are attracting or repelling. • Give students a magnet with several objects (paperclip, aluminum can, plastic cube, book, iron nail). Ask students to predict which objects will be attracted to the magnet. Have students test each object and explain their results. <p>Application/Analysis Level</p> <ul style="list-style-type: none"> • Give students a paperclip, an iron nail, a bag of iron shavings, and several other magnetic objects. Ask the students, "Why do these objects all fit in the same category?" and "What do they have to do with magnets? Put 2 circle magnets on a pencil, so that the magnets are repelling (one magnet should be hovering in the air). Ask students to explain why this is happening. <p>Synthesis/Evaluation Level</p> <ul style="list-style-type: none"> • Introduce students to a picture and investigative situation. Students should explain why a change is taking place using key terms related to magnetism.

<p>Three Weeks</p>	<p>2.1 a-m</p>	<p>Scientific Investigation: Process Skills Stations</p>	<p>VDOE Enhanced Scope and Sequence Lessons:</p> <ul style="list-style-type: none"> • Observe and Classify • Let 's Find the Mass • Are All Containers Created Equal? • Feeli n' Hot, Hot, Hot <p>Careers:</p> <ul style="list-style-type: none"> • Career Connection <p>Activities & Websites:</p> <ul style="list-style-type: none"> • Jefferson Lab • SOL Pass • Scientific Investigation, Logic and Reasoni ng • Brainpop Jr-Scientific Investigation • Investigations and Data • Scientific Investigation Review 	<ul style="list-style-type: none"> • Use Interactive Achievement to create assessments
<p>Two Weeks</p>	<p>2.1, 2.2 a-c</p>	<p>Review/Benchmark Test/ Portfolio Evaluation</p>		<ul style="list-style-type: none"> • Use Interactive Achievement to create assessments.